

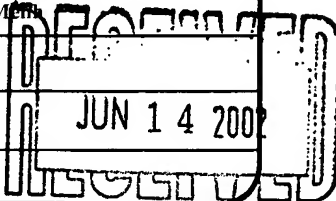


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In re patent application of:

OGMEN, Melih

Serial No.: 10/034,204

Group Art Unit: 2644

Filed: January 3, 2002

Examiner: Not Yet Assigned

Title: METHOD AND APPARATUS FOR UNSUPERVISED TRANSACTIONS

Assistant Commissioner for Patents  
Washington, D.C. 20231

**CERTIFIED COPY OF PRIORITY DOCUMENT UNDER 35 U.S.C. 119(b)**

Sir:

The benefit of the filing date in Canada of a patent application corresponding to the above identified application, has been claimed under 37 C.F.R. 1.55 and 35 U.S.C. 119 in accordance with the Paris Convention for the Protection of Industry Property. A certified copy of the corresponding Canadian Patent Application bearing Serial No. 2,330,196, filed January 3, 2001, is submitted herewith.

Respectfully submitted,

29 | 05 | 02  
\_\_\_\_\_  
Date

\_\_\_\_\_  
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Specification and Drawings, as originally filed, with Application for Patent Serial No:  
**2,330,196**, on January 3, 2001, by **MELIH OGMEN**, for "Unsupervised Internet Search  
and a Sovereign Operating System"

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## UNSUPERVISED INTERNET SEARCH AND A SOVEREIGN OPERATING SYSTEM

During an Internet information search, both the computers and the programs that are involved in searching this information, function as simple pass through conduits. The user has to initiate the search with an intelligent choice of key words or phrases that might capture the type of information that is being sought for. Subsequently these sentence fragments are keyed into a search engine and a list of potential sites that contain the sentence fragments is produced by the search engine. Most search engines utilize various schemes to generate relative potential ranking of the search results to provide a starting point for a more in-depth search for the user within individual pages.

At this point in the search, the user visits as many sites as necessary to actually look for the information within the web sites. The user identifies the relevant sites or documents within these sites and downloads the required information into the local hard disk or a storage device.

This information is then further analyzed and sorted by the user for contextual subtleties within each document.

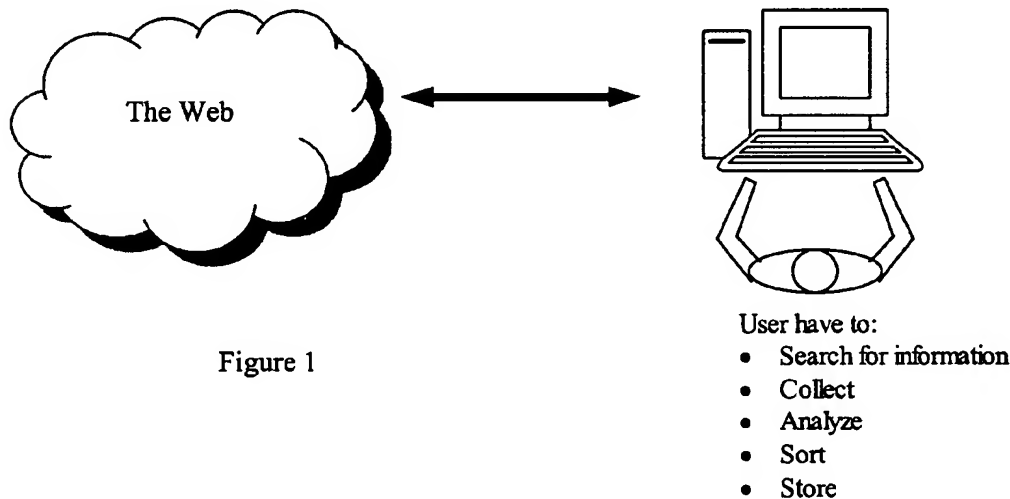


Figure 1 summarizes an Internet search activity in a graphical format. The key issues to highlight are:

1. The quality of the search results depend strongly on
  - a. The selection of the initial key phrases
    - i. The user's background
    - ii. Imagination
    - iii. Intelligence
    - iv. Familiarity with the topic
  - b. The number of sites that are in the users language
  - c. The amount of time the user has for this particular activity
2. The user has to personally perform all of the activities listed below
  - a. Searching
  - b. Collecting
  - c. Analyzing
  - d. Sorting
  - e. And storing
3. Most search engines do not search for the search phrase throughout the complete web page.

The following example will highlight some of the issues described.

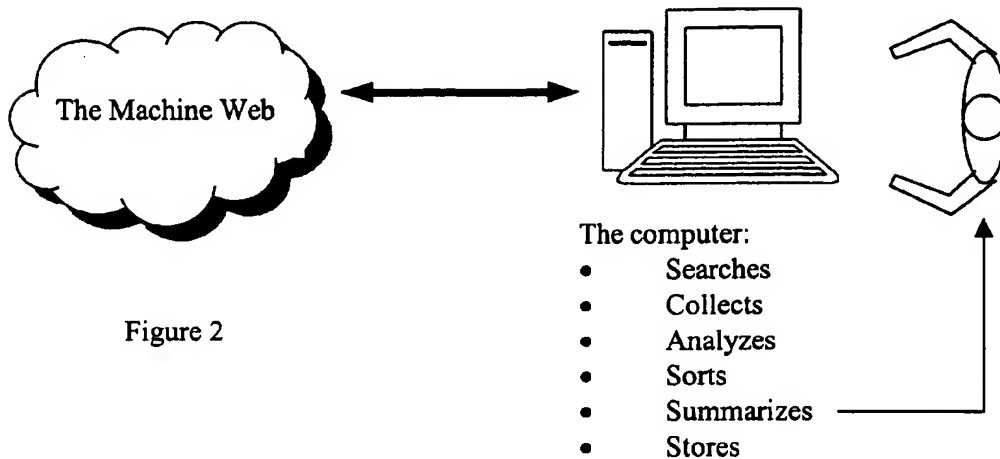
If a search were made to find information on Albert Einstein's views on Creation, the existing search methods would become very cumbersome and time consuming for the user. In this example, the information that is being sought cannot be effectively captured by comparing simple user typed key phrases with what is normally stored in the "Meta Text" sections of web pages unless there happens to be a web page focusing only on this topic. A general document about Einstein's life might contain an important paragraph about his views on Creation. Such occurrences will be certainly missed by the existing search methods.

Documents that are in languages other than English (assuming that the user communicates using English only) will not be useful for the user though there might be significant amount of information on the topic, for example, in the Vatican archives page in either Italian or Latin.

Furthermore Einstein's view on the creation of the quantum theory needs to be distinguished from his views on Creation. All of these subtleties have to be analyzed, and sorted by the user personally.

To circumvent all of the above-mentioned shortcomings of existing search methods effectively all of the tasks that were previously performed by the user (i.e. search, collect analyze, sort and store) should be relinquished to the computer. The computer has to become much more than a simple conduit for information that exists in the net.

Figure 2 below shows the proposed new functionality of the Internet search activity in a graphical form.



Relinquishing all of the above-mentioned tasks to a computer necessitates the following:

- The development of a mirror internet which contains the same information as in the Web but in a format and a language where machines can access this information without direct human intervention and furthermore can capture meaning and context of the information.
- The development of a sovereign, high-level operating system functioning above the existing computer (machine) OS and other applications.

Going back to the example of searching for Einstein's view on Creation, a machine should be able to "read" and "understand" the entire content of a web page so that a paragraph that is buried within a more general discussion can be identified as relevant and subsequently can be extracted.

Such a capability from a machine necessitates a new language for machines that is designed specifically for machines to convey information between machines efficiently and rapidly.

Various human languages developed in the manner they did as a result of human brain's immense capacity to derive context from symbols. To be able to encapsulate some of the human contextual information, machines will need a special language with a structure that allows for the capture of context from written human documents.

Upon successful development of a grammar (protocol) and a vocabulary for a machine language, various translation software have to be created to translate human languages to machine language and vice versa.

Below I propose a method to create such a machine language.

Though it is possible to devise a machine language, which has an alphabet, the current invention will not be based on an alphabet; instead it will have an extensive vocabulary based on existing human words from most if not all human languages. A human language such as English or German contains no more than a few hundred thousand individual words, phrases, proverbs, maxims, aphorisms. A very high percentage of these words will be common in all human languages. For example a different sound sequence might be used to represent an object such as a desk in different human languages but nevertheless they all will point to the same physical object.

In the first instance all of these human words, phrases, proverbs, maxims, and aphorisms from all human languages will be mapped using a 32 bit numbering system. Considering the fact that a 32-bit number contains approximately 4.3 billion combinations there will be ample opportunity to structure the vocabulary so that future expansion and dynamic modification of the vocabulary can be possible.

The organization of number assignment to various human words will be arranged in such a way that further benefits from such a mapping system can be realized with ease. For example words that fall into same categories within a thesaurus scheme can be numerically grouped. Such a format can bring several additional benefits such as potential replacement words for a broader search activity and possibility to contribute towards establishment of context for a given sentence.

The grammar of the machine language is envisioned to be strictly positional as opposed to inflectional. The following rules will form the basis for the grammatical structure of the machine language.

The word order of the grammar can be anyone of the six SVO (Subject, Verb, Object) combinations. Here we will use SVO due to its familiarity to English speaking population.

Sentences will be structured in the form of a three or higher dimensional matrixes. For ease of explanation, we will use a three dimensional matrix for the description of the concept.

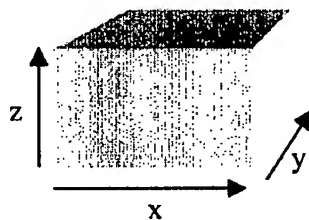


Figure 3

As shown in figure 3, the dimensional axes of the matrix correspond to the following:  
 x. word order and modifiers  
 y. relative importance of sentence elements  
 z. time order.

The sense of time within the sentence for both tenses of verbs and time modifying sentence elements (e.g. before, after etc.) will be organized as x-y planes with different z values.

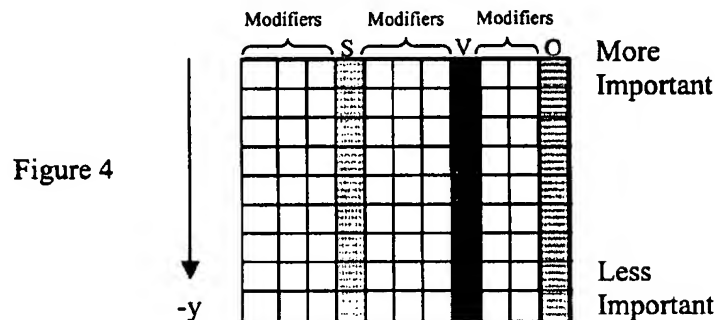
A sample time organization scheme can be as follows:

All positive integer z values will correspond to future events moving progressively further with increasing z value. Similarly the negative z values would then correspond to events that are in the past. Z=1 will be reserved for present and z=0 can be reserved for truth statements, time independent activities etc. For example statements such as I work or we fear or hydrogen is lighter then oxygen will all have z=0 value in their matrix entries.

A skipped z value within the matrix structure will indicate a completed action.

This timing scheme will help to accommodate varying number of tenses in different human languages as well as individual schemes that are developed within each human language to identify tenses by modifying the verbs.

For a given z value of the sentence matrix, the corresponding x-y plane can be organized as follows:



The top left corner of the grid (for a given z value) can be assumed  $y=0$ . As y takes progressively higher negative values the relative importance of that particular word within the sentence is gradually diminished.

As a general example let's analyze the sentence



"A hungry white cat ate a small black bird.

	Subject Modifiers			S	V	Object Modifiers			O
0				cat	eat				bird
-1	A	hungry	white			a	small	black	
-2									
-3									

Figure 5

This sentence will have a z value of -1 since it happened in the past hence there is no need to use the past tense of the verb eat. The above sentence emphasizes the fact that a cat ate a bird. All attributes of the cat and/or the bird are secondary to the main activity conveyed by the sentence.

The same sentence can be structured in many alternative ways to change the emphasis. The sentence structure shown in figure 6 converts the meaning of the sentence to an interplay between colors black and white and de-emphasizes the act of eating.

	Subject Modifiers			S	V	Object Modifiers			O
0			white					black	
-1				cat					bird
-2					eat				
-3	A	hungry				a	small		

Figure 6

Given the grammar rules and conventions that are described above, every sentence within this language can be examined for several aspects to derive contextual information. First of all each individual pattern that is formed at consecutive x - y planes of the matrix provide the information on the emphasis. This pattern clearly shows whether the emphasis is on the object, verb, subject or on one or more of the modifiers of the sentence. This particular characteristic of the machine language will be called the *pattern emphasis*. Furthermore the relative pattern emphasis between the layers of the matrix also indicates the emphasis in the timing aspect of the sentence.

A given machine language sentence can be further analyzed for "concept relationships". There are occurrences in human speech where a word might have several potential meanings. When the pattern emphasized words are further analyzed with respect to their thesaurus grouping, it will be possible to uncover other potential meanings for a given sentence. For instance the sentence emphasized in a manner that is shown in figure 6 might lead to a conclusion that though the discussion might seem to be about the feeding habit of a particular bird in fact it is about the struggle between forces of good and evil.

When the pattern emphasis analysis and the concept relationship analysis are performed on machine language sentences and paragraphs it will be possible for a machine to "understand" the contextual information that is conveyed by the document.

Therefore if the document discussing Einstein's life was written in machine language then a machine would be able to distinguish the conceptual difference between the creation of quantum mechanics and creation of human race.

Given a well defined grammatical structure for the machine language and a vocabulary set which contains all words that exist in any given language it would be possible to develop translation programs to convert any common language to the machine language and vice versa.

Every web page can then potentially have a mirror generated by executing the translation software on the page. This will then create a mirror Internet in the machine language, which we will call the Machine Net. The machines can then access the Machine Net directly and the information contained therein can be analyzed for its content by the machines without direct human intervention.

Once a machine acquires a language it can also easily analyze its own web page and hence can "know" what it is presenting to the outside world. As much as a machine can know its own web page content it can as easily ask content related questions to another machine and expect to receive answers. This particular characteristic can also eliminate the necessity to read through and analyze entire web pages for information that might not be there at all.

A person reading at normal speed can cover 14,000 to 15,000 words per hour. A computer can "read" a similar machine language document in about 1 second. Including its transmission time between computers. Given this speed, it will be possible to search all available web pages for information in about the same time frame as it takes a human user to sort through numerous web pages in human languages. The speed, direct communication (question and answer) and comprehension capability will then eliminate the need to use search engines, as we know them today.

Going back to our original search for Einstein's views on Creation. Given that the machine language and machine net is operable how does a client computer coordinate its activities internally to perform operations such as direct communication with other computers, continuous searches, sorting of the acquired data, storing and generating summary reports? All of these activities will be controlled by a sovereign, high level operating system (Hiops)

Hiops resides above the PC operating software. The relationship between the Hiops and the PC operating system is somewhat similar to the relationship between the central nervous system and autonomic nervous system. The autonomic nervous system controls lower level functions in our bodies such as the heart beat, activities of various organs etc. whereas the central nervous system helps orient us within the outside world and enable us to function within our environment. The PC operating system controls the interactivity between the various PC hardware and their relationship to a user. Hiops will control the higher-level activities of the machine within the larger environment such as machine net.

It will also help modify the environment of the machine user by enabling a link between the user and all other information sources that are available within the machine net.

A key characteristic of the Hiops is that it can function without any input or intervention from the PC user within the operating parameters that are set by the user. Figure 7 shows the operational requirements of Hiops. Figure 8 shows the internal structure of the Hiops system.

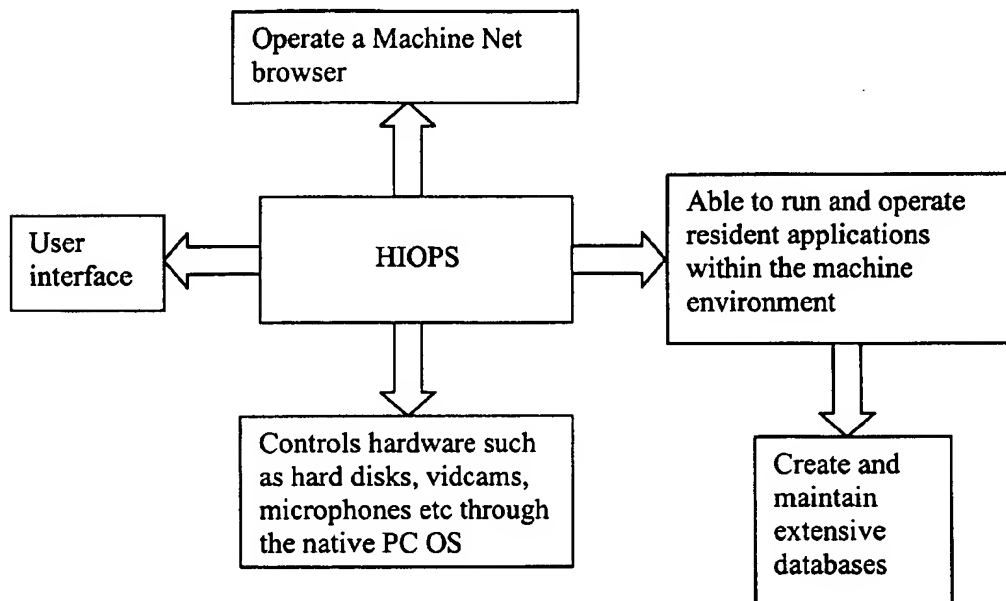


Figure 7

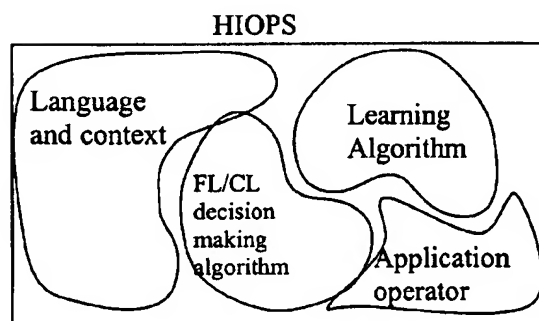


Figure 8

The user communicates with the machine via the user interface to initiate a search on Einstein's views on Creation. The communication between the machine and the user can be any of the conventional means ranging from voice recognition to keyboard entry.

The machine translates the user's language to machine language to analyze the context of the request. This information is passed onto the Decision Making Algorithm (DMA) within the Hiops. DMA initiates a search on the existing local databases identify existing relevant information that might be stored locally. Assuming that the request could not be satisfied locally, DMA opens up the machine net browser through application operator sub system.

Using the Machine Net browser a search is initiated for selected key words, such as Einstein and Creation. The browser searches all available (for the purpose of describing the most general case we are assuming that machines do not ask questions to each other) web sites and analyzes their contents using the language/context sub system of Hiops for its relevance.

If a relevant section is identified within a document on a site, DMA creates a temporary search database and copies the site information and the document into this database linking this information to the initial search criteria that was selected.

The searching and saving to the temporary database action continues until all available web sources are exhausted or some pre-established search parameter limits such as duration are reached. At this point the DMA slightly varies the search key words or phrases. The word "creation" within the search parameters might be replaced by alternatives such as creationism, evolution, Darwinism etc. Further searches using the new phrases and keywords are initiated by the DMA. The user established global search criteria eventually bring the searching action to an end.

The DMA starts the analysis of the data stored in the temporary search database. The parameters and information such as:

- the search criteria,
- the relevance tags that are generated for the captured documents and/or their subsections,
- documents that are captured by several different search criteria
- and other parameters

are then used with Fuzzy Logic (FL) and/or Chaotic Logic (CL) decision making systems depending on the diversity or complexity of the results at hand.

The DMA finally creates a summary document based on the results obtained by the content analysis. This document includes text, which is compiled from many different documents and direct links to the original sites where each sub section was obtained. The final summary document is then translated from the machine language to the users own human language.

The DMA then initiates the learning algorithm and stores the key aspects of the search in a permanent database and eliminates the temporary database.

Another more sophisticated use of the machine language, the machine net and the sovereign operating system can be captured through the description of Networked Satellites.

A Satellite can be defined as a combination of hardware and software designed for a specific application. Networked satellite hardware contains the machine language capability, Hiops and a means to connect the machine net. This satellite is then networked with other satellites specializing in different areas of use.

An example of a networked satellite can be a "phone satellite". This small box sits somewhere (possibly in multiple locations) in the house and maintains individual and family phone lists as well as capability to make phone calls. A user can communicate with it via voice or another conventional means.

If the user is looking for the phone number of a long lost friend then the phone satellite can simply be instructed to undertake a phone number search for the given name. If further information such as potential location (i.e. the European continent or UK) is available this information can also be provided to the phone satellite to reduce the search time or multiple hits.

Satellites being fully capable of performing the tasks without any human operator intervention can run searches for the user for days and weeks at the background until the necessary information is obtained or other pre established criteria is achieved.

To perform the search the satellite hooks on to the machine net using the capabilities of Hiops and starts systematically searching various information sources in the machine net such as membership information of various societies, direct name searches etc. for the purpose of potentially identifying a location (guidance search) for the name prior to an in-depth search in phone books.

If the guidance search provides any results then the satellite Hiops analyzes them for further clues. From the information that is distilled from the analysis, a phone book search can be initiated for the locations that are previously identified. Every time a match or a close match is recorded, Hiops files this information in a specific database within the satellite.

At the end of the search, the satellite summarizes the results as explained previously and generates a summary document for the user. If the user chooses, the final information can be stored in the more permanent database of the satellite for future reference.

A personal satellite network can be as follows:

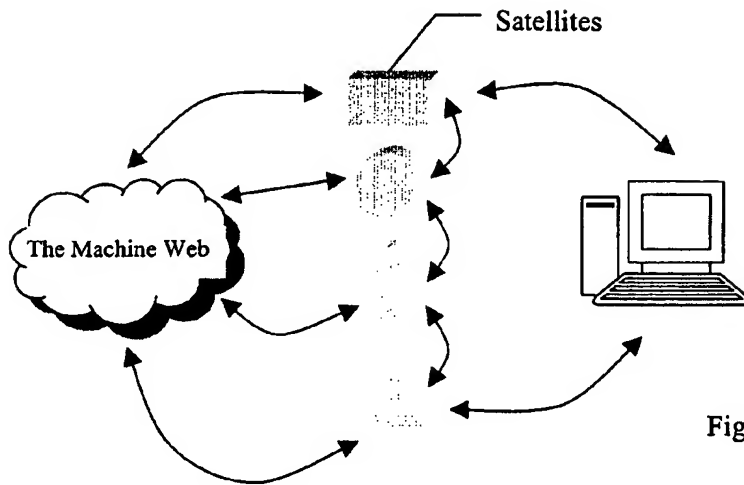


Figure 9

Satellites specializing pretty much all-imaginable human activity can be constructed. Figure 9 shows such a scheme. The computer shown in figure 9 is not an essential component of the satellite system.

The satellites will be networked to share information as well as to maintain distributed knowledge base can be for the user. For example a "vehicle satellite" will notice that the service time for the vehicle is approaching. It then will automatically:

- select the best possible service center with respect to the type of service the vehicle needs through the Machine Net utilizing the user established criteria such as the "most inexpensive place within 15 minutes of driving distance",
- contact service centers to determine available time slots for chosen service center
- connect to the satellite which looks after the day timers for the whole family and will check the appropriateness of the potential booking time slot with respect to the activities of the family,
- if there are no conflicts it will book the appointment
- it then will transfer this information to the day timer satellite so that it is recorded in all day timers.
- it will connect to the phone satellite and through it will contact the user's wife/husband/significant other at work via e-mail (or other means) to transmit the new appointment information.
- from the services satellite and the phone satellite it will identify the most appropriate taxi service (fastest or cheapest or with most cars etc.) and will book a taxi cab for the time of the vehicle drop off at the service center.
- it then will report this activity to the user for necessary modifications.
- And finally will note all the selections and activities approved by the user and store this information in its permanent database for future reference.